Privatisation of biodiversity

Nsoh, Walters; Reid, Colin T.

Published in:
Environmental Law and Management

Publication date:
2013

Document Version
Peer reviewed version

Privatisation of Biodiversity: Who can sell Ecosystem Services?

Dr Walters Nsoh* **and Professor Colin T. Reid****

Introduction

A Payment for Ecosystem Services (PES) scheme is a mechanism whereby payments are provided in exchange for the management of land to maintain or enhance the health of the ecosystem, thereby providing benefits for the public or specific beneficiaries, e.g. carbon storage or control of water resources. Such payments can take the form of flat-rate subsidies or individually negotiated contracts to ensure that greater effectiveness can be achieved. This mechanism has been used in many parts of the world with varying degree of success,[1] and is now increasingly being considered in the United Kingdom (UK) as one way of conserving biodiversity.[2] There are benefits to this approach, but also challenges that must be faced when applying this mechanism. The main aim of this paper is to present some of the challenges to be met if the use of PES is to be expanded. Specifically, this paper examines whether the benefits of PES schemes should accrue to the owner or occupier of land, taking into account the endless variety of tenancy agreements and other interests in land, including the particular problems of common land in England and Wales and crofting in Scotland. By analysing the literature on the schemes in operation abroad and the UK examples and how they address these property rights issues it is possible to provide the basis for the design choices to be made if PES schemes are to play a bigger role in UK conservation law. Given the need to secure services over a prolonged period if they are to deliver real benefits, the paper argues for the need to devise appropriate legal safeguards that reflect the different ownership and occupation interests, that can guarantee the continuing provision of services despite changes in ownership and occupation, but that are flexible enough to cope with the dynamic nature of both the environment and our demands on it.

Background

* Postdoctoral Research Assistant, School of Law, University of Dundee, Scotland, United Kingdom (UK). Email: w.nsoh@dundee.ac.uk.

** Professor of Environmental Law, School of Law, University of Dundee, Scotland, United Kingdom (UK). Email: c.t.reid@dundee.ac.uk.

This work is based on an AHRC-funded project "The Privatisation of Biodiversity?". Thanks to the participants in the Challenging Ownership stream at the SLSA Annual Conference held at the University of York in March 2013 for the useful discussions.

[1] L Raymond and S K Fairfax, 'The ''Shift to Privatization'' in Land Conservation: A Cautionary Essay'(2002) 42 Nat Res J 599-639; J Salzman, 'Creating Markets for Ecosystem Services: Notes from the Field'(2005) 80 NYU L Rev 870-961.

[2] E.g. H Dunn, *Payments for Ecosystem Services* (Defra Evidence and Analysis Series Paper 4, Defra, London 2011); Defra, *Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services* (Defra, London 2011) 24; HM Government, *The Natural Choice: Securing the Value of Nature* (Cm. 8082, 2011); W J Sutherland and others, 'The Identification of Priority Policy Options for UK Nature Conservation'(2010) 47 J Appl Ecol 955-65; and URS/Scott Wilson, *Barriers and Opportunities to the Use of Payments for Ecosystem Services* (Defra, London 2011).

The UK failed to meet its target of halting biodiversity loss by the end of 2010.[3] Although some progress is being made,[4] the current policy and regulatory approaches have not prevented, far less reversed, the loss of biodiversity across the country.[5] The current conservation law uses a fairly narrow range of legal techniques.[6] Most significant are the use of the criminal law, prohibiting acts that harm particular species and the features for which specific sites are valued, and the operation of what is in effect a licensing scheme, permitting actions on designated sites only where approved by the statutory conservation body.[7] These are supplemented by financial incentives, primarily through the wider rural development and agricultural support schemes, and agreements made between the conservation bodies and owners and occupiers of land. Central to all of these is the direct role of the state (in a range of manifestations), in policing and enforcing the criminal law, in designating the species and habitat to be given special care, in deciding what activities may (or must) go ahead on designated sites, in making the agreements and in operating the financial support schemes. This approach is failing to prevent the decline in biodiversity.

However, in agricultural and rural policy there has been a general shift from expanding production of low cost commodities, even though they were in surplus, to actively caring for the land, coinciding with the emergence in the mid-1980s through the 1990s of what is known as 'multifunctional' agriculture.[8] The shift to integrated land management has been accompanied by the rise of new forms of relationships between people and land.[9] The aim is to safeguard valued habitats and landscapes using regulations and incentives to encourage farmers to manage land for uses other than food production, e.g. maintaining biodiversity, conserving landscapes, providing access to the countryside and protecting water resources. It is a shift that has contributed to what is now called an 'ecosystem services' approach, an approach that emphasises the need for holistic policy making and delivery, recognising that land provides economic, social and environmental services alike.[10] It promotes adaptive management of the environment to respond to changing conditions, including climate change. This means that farmers can no longer see themselves just as 'food producers' but as 'integrated land managers'.

---

[3] This target was adopted by the EU at the Gothenburg Summit in 2001 (Presidency Conclusions (SN 200/1/01 REV 1) para. 31), embedded in the Sixth Community Environment Action Programme (Dec 1600/2002/EC) [2002] OJ L242/1, art. 6, and repeated by UK Ministers on many occasions, e.g. Foreword to Defra, *Conserving Biodiversity – The UK Approach* (Defra on behalf of UK Biodiversity Partnership, London 2007).

[4] For example, the fact that the condition of many designated sites is improving, although still not good: see The Official Statistics Publication for Scotland on the Proportion of Scotland's Protected Sites in Favourable Condition 2012, available at <http://www.snh.gov.uk/docs/A714847.pdf> and <http://www.sssi.naturalengland.org.uk/Special/sssi/reportAction.cfm?Report=sdrt15&Category=N&Reference=0> accessed 07 January 2013. See also Defra, *UK Biodiversity Indicators in Your Pocket 2012: Measuring Progress Towards Halting Biodiversity Loss* (Defra, London 2012) for some encouraging signs of the progress made.

[5] House of Commons Environmental Audit Committee, *Halting Biodiversity Loss* (13th Report of 2007-08: HC 743) and Halting biodiversity loss: Government Response (2nd Special Report of 2008-09: HC 239).

[6] See generally, C T Reid, *Nature Conservation Law* (3rd edn, W. Green, London 2009) esp. Ch. 1.6.

[7] In Great Britain, the main conservation powers and function are in the hands of non-departmental bodies created by statute (Scottish Natural Heritage, Natural England and Natural Resources Wales (which took over the functions of the Countryside Council for Wales in April 2013)); in Northern Ireland, this role is fulfilled by the Northern Ireland Environment Agency, an agency within the Department of Environment of the Northern Ireland Executive.

[8] For an overview, see G A Wilson, *Multifunctional Agriculture: A Transition Theory Perspective* (CABI, Wallingford 2007).

[9] See e.g., N Ravenscroft and B Taylor, 'Public Engagement in New Productivism' in M Lobley and M Winter (eds), *What is Land For?: "The Food, Fuel and Climate Change Debate"* (Earthscan, London 2009) 213-229.

[10] Defra, *Securing a Healthy Natural Environment: An Action Plan for Embedding an Ecosystems Approach* (Defra, London 2007).

Enhancing the role and effectiveness of the state in the implementation of the current approach to conservation law, through greater resources and further adjustments to the law, might improve the protection that is given to biodiversity, especially now that the wider policy background for rural development, agricultural support, forestry and marine activities emphasise ecological efficiency as much as economic efficiency.[11] An alternative, though, is to explore approaches that allow or require a much greater part to be played by private initiative and the market, whether within schemes where there is still strong regulatory underpinning or as part of an essentially unregulated, market-led approach. A PES scheme is one of such approaches being considered that places greater emphasis on actors other than the State and could harness private initiative and resources to further conservation.[12]

While there are benefits to this approach,[13] its successful adoption presents a number of challenges. Alongside the deeper conceptual concern that it runs the risk of treating nature as a commodity to be viewed purely according to the economic rules of the market rather than as a common heritage to be cherished by and for the community as a whole,[14] there are practical issues that will determine its potential applicability in the British context. Some of these challenges are discussed later, but the main aim of this paper is to attempt to answer the critical question of who can sell ecosystem services, especially given the need to secure services over a prolonged period if they are to deliver real benefits. This is particularly important taking into account the endless variety of tenancy agreements and other interests in land, including the particular problem of common land in England and Wales and crofting land in Scotland, as well as the fact that the present conservation law is applied irrespective of the nature of the property rights in the land (whether freehold, tenanted or common land). Agricultural property rights range from simple owner-occupation to contract farming with forms of secure and insecure tenancy in between.[15] However, unconventional forms of tenure such as share or community-supported farming, contract farming, short tenancies,[16] community-owned social enterprise, land trusts, and community land trusts[17] have emerged which have implications for land management practices. These new forms of relationship between people and land mean that one can be a landowner in common with others, but not have a direct relationship with the farmers who rent the land; or be a farmer, albeit a 'non-active' one.[18]

The challenges for PES schemes can be divided into two broad categories: those relating to the difficulty in identifying and valuing ecosystem services (technical elements) and those concerning the governance and effectiveness of any such scheme for the specific needs of biodiversity conservation (legal and institutional elements). Such issues are already being addressed by the many initiatives worldwide that are applying or considering such a market

---

[11] C T Reid (n 6) 361-365.
[12] E Comerford, D Molloy and P Paul Morling, *Financing Nature in an Age of Austerity* (RSPB, 2010), 50-57.
[13] See e.g., Defra, *Securing a Healthy Natural Environment: An Action Plan for Embedding an Ecosystems Approach* (n 10) 11.
[14] Similar issues have already arisen in other areas of environmental law, e.g. in relation to pollution taxes (e.g. M Sagoff, 'Economic Theory and Environmental Law'(1981) 79 Mich L Rev 1393-419) and emission trading schemes (e.g. G Winter, 'The Climate is No Commodity: Taking Stock of the Emissions Trading System'(2010) 22 Journal of Environmental Law 1-25; and C T Reid, 'The Privatisation of Biodiversity? Possible New Approaches to Nature Conservation Law in the UK'(2011) 23 JEL 203-31).
[15] S Whatmore, R Munton and T Marsden, 'The Rural Restructuring Process: Emerging Divisions of Agricultural Property Rights'(1990) 24 Regional Studies 235-45.
[16] M Winter, 'Revisiting Land Ownership and Property Rights' in H D Clout (ed), *Contemporary Rural Geographies, Land, Property, and Resources in Britain: Essays in Honour of Richard Munton* (Routledge, London 2007); A Butler and M Winter, *Agricultural Tenure in England and Wales 2007* (CRPR Research Report No 24, University of Exeter, Exeter March 2008).
[17] See N Ravenscroft and B Taylor (n 9) 213-232.
[18] Ibid, 222 and 229.

approach to biodiversity,[19] and that experience is worthy of much deeper study,[20] but here the intention is to focus on the key challenge of who can sell ecosystem services and how this is being tackled in different ways in different contexts.

PES schemes have developed within the wider context of the ecosystem services approach. As such, this article begins with an overview of the ecosystem services approach and the services being paid for. The article then examines the challenge of valuing ecosystem services. This is important because, for PES schemes to be effective, we need to be able to put a value on the services concerned. The economic value attached to ecosystem services and the method used in calculating the amount of payments have direct implications for the eligibility of the person getting payments for the provision of services. Although the current approach to biodiversity conservation, supplemented by financial incentives, primarily through the wider rural development, agricultural and forestry support schemes, is failing to prevent the decline in biodiversity, such support schemes provide a critical starting point for any assessment of who is eligible to sell ecosystem services. They also provide the basis for the development of a framework for the application of the ecosystem services approach.

Ecosystem Services Approach

Since the 1990s, there has been a shift in focus from the narrow species or habitats approach in conservation efforts towards an ecosystems approach.[21] This new approach involves 'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.'[22] Central to this is the emphasis on the 'conservation of ecosystem structure and functioning, in order to maintain ecosystem services.'[23] This not only requires adopting a new way of thinking and working but also a shift in focus of policymaking and delivery towards a more holistic or integrated approach based on the entire ecosystem.[24] As well as the efforts to change our way of thinking and increase our understanding of the workings of ecosystems, there is increased recognition of the role of the 'natural'[25] environment in providing a range of services of great practical, economic and spiritual value to society, either directly or indirectly. The ecosystem services framework provided the basis for the United Nations' Millennium Ecosystem Assessment[26] and has been endorsed in the UK Sustainable Development Strategy.[27] The need to ensure that the value of ecosystem services is fully reflected in policy and decision-making[28] is further underscored in

[19] In relation to schemes relating to watershed protection alone, a report in 2010 identified 288 payment programmes "in varying states of activity" around the world: T Stanton and others, *State of Watershed Payments: An Emerging Marketplace* (Ecosystem Marketplace, 2010), available at <http://www.forest-trends.org/documents/files/doc_2438.pdf>.

[20] Valuable studies include: T Greiber and S Schiele (eds), *Governance of Ecosystem Services: Lessons Learned from Cameroon, China, Costa Rica, and Ecuador* (IUCN, Gland 2011); T Greiber (ed) *Payments for Ecosystem Services: Legal and Institutional Frameworks* (IUCN, Gland 2009).

[21] House of Commons Environmental Audit Committee, *Halting Biodiversity Loss* (n 5).

[22] Convention on Biological Diversity, COP 5 (2000), Decision V/6, para. 1 <http://www.cbd.int/decision/cop/default.shtml?id=7148> accessed 8 February 2013.

[23] Ibid para 6, Principle 5.

[24] Defra, *Securing a Healthy Natural Environment: An Action Plan for Embedding an Ecosystems Approach* (n 10) 7.

[25] In many parts of the world the 'natural' environment is in fact the product of centuries of human intervention.

[26] United Nations, 'Millennium Ecosystem Assessment' (2005) <http://www.unep.org/maweb/en/index.aspx> accessed 8 February 2013.

[27] HM Government, *The UK Government Sustainable Development Strategy: Securing the Future* (Cm. 6467, 2005).

[28] Defra, *Securing a Healthy Natural Environment: An Action Plan for Embedding an Ecosystems Approach* (n 10) 7.

both the 2011 UK National Ecosystem Assessment (NEA)[29] and the Natural Environment White Paper.[30]

Four broad categories of ecosystem services are recognised both at the national and international levels. These are: provisioning services such as food, crops, timber, fresh water and plant-derived medicines; regulating services such as those that affect water quality through the filtration of pollutants by wetlands, climate regulation through carbon storage and water cycling, and protection from disasters and disease; cultural services that provide recreation, spiritual and aesthetic values, and education; and supporting services such as soil formation, photosynthesis and nutrient cycling.[31] The documents mentioned identify the value of the natural environment to society and the more holistic approach that they encourage requires a shift in the both the mind-set and practices of many of those who manage and use land. This is one of the fundamental challenges that the introduction of this approach faces – are farmers now going to see themselves as 'integrated land managers' who produce food and provide ecosystem services rather than just 'food producers'? How will adaptive management to produce ecosystem services be reconciled with established agricultural and other uses on specific lands where multifunctionality is yet to be recognised?[32] These and other statutory limitations on the multifunctional use of land are further examined below in the light of who is eligible to sell ecosystem services.

A starting point in the shift in our policies and practices to reflect the value of land in providing ecosystem services is to calculate in economic terms the value of such services and to ensure that this is properly taken into account when decisions that affect the state of undeveloped land are being taken. The next section examines the challenges of valuing ecosystem services.

Valuation of Ecosystem Services

The invisibility of the benefits of ecosystem services has often encouraged their inefficient use or even destruction in our pursuit of economic development.[33] Valuation can therefore provide a tool by which the economic loss resulting from the destruction of ecosystem services is no longer viewed separately from the economic gain of development.[34] One approach of doing this that has been suggested is that environmental impact assessment processes should not focus only on identifying any adverse environmental consequences but put a value on any ecosystem services lost.[35] Yet, attaching a value to ecosystem services in itself is not a panacea for the sustainable management of services. Putting a value on the ecosystem services lost is likely to be seen by those who manage land as adding further environmental restrictions to development programmes. This not only affects the decision-making process but also exposes the decisions to challenge by land managers.

---

[29] UK National Ecosystem Assessment, *The UK National Ecosystem Assessment: Synthesis of the Key Findings* (UNEP-WCMC, Cambridge 2011).

[30] HM Government, *The Natural Choice: Securing the Value of Nature* (Cm. 8082, 2011).

[31] The Economics of Ecosystems and Biodiversity (TEEB), *The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB* (2010) 7, and Annex 2 and the sources referred to there. See generally the website of the TEEB project <http://teebweb.org> accessed 11 February 2013.

[32] See e.g. P Lowe and others, 'Strategic Land Use for Ecosystem Services' in M Lobley and M Winter (eds), *What is Land For?: "The Food, Fuel and Climate Change Debate"* (Earthscan, London 2009) 28-29.

[33] The Economics of Ecosystems and Biodiversity (TEEB) (n 31) 3.

[34] Ibid.

[35] C T Reid, 'The Privatisation of Biodiversity? Possible New Approaches to Nature Conservation Law in the UK'(2011) 23 JEL 203-31, 220.

Other approaches have been suggested to ensure that decisions about economic development are not prejudicial to the economic loss of ecosystem services. [36] Central to the need to balance the gain from development with the loss of ecosystem services is the emphasis on linking the cost and benefits more directly. Even so, complications arise because specific non-marketable, but nonetheless valuable, ecosystem services cannot readily be priced.[37] Their relative or absolute value is implicit rather than explicit while other ecosystem services such as producing food, timber and energy do have an explicit economic value reflected in their market price. The implication of this is that payments for ecosystem services under most PES schemes, including the agri-environment schemes under EU legislation, are not valued financially in their own right. With a few exceptions, they are rather assessed with reference to the land area or income forgone by adopting specified land management practices. In other words, the service being paid for has no direct link to the means by which the payment is calculated.[38]

Under the US Conservation Reserve Program (CRP), for example, annual payments are provided to farmers for planting long-term, resource-conserving covers on eligible farmland.[39] The programme encourages farmers to convert highly erodible cropland to vegetative covers, such as native grasses, wildlife plantings, trees, filter strips or riparian buffers. In so doing, the farmers are paid for the provision of ecosystem services such as protection against soil erosion, preservation of water quality, and provision of wildlife habitat. Payment rates are primarily based on relative productivity of the soils within each county and the average dry land cash rent or cash rent equivalent,[40] determining the amount to pay is still largely dependent simply on the area of land to be placed under the scheme. Acreage might be appropriate in determining the value of ecosystem services such as protecting soil productivity that mainly require leaving land in its natural state for some time, but neither can it provide an adequate basis for valuing other services from land in their own right, nor does it ensure that payments go to the person directly or indirectly responsible for the provision of a particular service over time. Moreover, under the CRP, landowners are encouraged to offer their land below the agreed rates in order to increase their chances of being accepted into the scheme.[41] This might be seen as an attempt to increase efficiency within the scheme, especially at a time of widespread austerity. In addition to the payment rates which are calculated in advance of the land delivering any service, the scheme also pays up to 50% of the cost incurred in the process of establishing the required

---

[36] See e.g., Defra, *An Introductory Guide to Valuing Ecosystem Services* (Defra, London 2007). See also, C T Reid, 'The Privatisation of Biodiversity? Possible New Approaches to Nature Conservation Law in the UK' (2011) 23 JEL 203-31, 220-222.

[37] See C T Reid, 'Between Priceless and Worthless: Challenges in Using Market Mechanisms for Conserving Biodiversity' (2013) 2 Transnational Environmental Law (in press), available at CJO 2012 doi:10.1017/S2047102512000210; D Helm and C Hepburn, 'The Economic Analysis of Biodiversity: An Assessment'(2012) 28 Oxford Review of Economic Policy 1-21.

[38] 'This seems unbalanced, given that food is valued by the market without necessarily taking into account the resulting environmental costs and benefits. It also seems out of step with the ecosystem approach, which values all services from land in their own right, not as adjuncts to or competitors with food production alone' (P Lowe and others (n 32) 37).

[39] See the website of the Conservation Reserve Program (CRP) <http://www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp> accessed 14 February 2013. For an overview of the history and development of the CRP, see Chapter 9 of J B Ruhl, S E Kraft and C L Lant, *Law and Policy of Ecosystem Services* (Island Press, Washington, DC 2007) 186-192.

[40] There is a bonus of up to 20% of the agreed annual rental payments for some land of particular environmental value. See e.g., J B Ruhl, S E Kraft and C L Lant, *Law and Policy of Ecosystem Services* (Island Press, Washington, DC 2007) 190-191.

[41] Farm Services Agency (FSA), 'Fact Sheet: Conservation Reserve Program, General Sign-Up 43' (2012) <http://www.fsa.usda.gov/Internet/FSA_File/gs43factsheet.pdf> accessed 14 February 2013.

management changes on the land.[42] This system of payment rewards the present land manager's efforts for implementing changes needed for the provision of services, but without tying payments to service output. It is therefore difficult to ascertain if payments have been made to the right person, especially for services that require beyond the 10 and 15 years duration of a contract to deliver.[43]

The task then is to ensure that there is a balance between the rates of payment, the service being provided, and those receiving payments at a given time. At the moment, the broad interpretation of the land and producer eligibility criteria allows for the enrolment of lands and for payments to be made to those that do not contribute significantly to service provision, while farmers who have taken good care of their lands, and so do not need to implement changes to deliver substantial services, may not qualify for payments.[44]

The choice of paying for services based on inputs and by area of land, even though this may not guarantee that payments are going to the right people might be based on seeking simplicity and to minimise costs. The auction systems used in the CRP and the BushTender programme of the State of Victoria (Australia),[45] for example, require landowners to determine their own price for setting aside land or adopting specified management practices. The competitive nature of the bidding process in which landowners have to decide how much, or rather how little, they are willing to accept, increases the risk of economic arguments about services valued by humans in the short-term overwriting and outweighing non-economic justifications for ecosystem service provision in the short-, medium- and long-term.[46] Beyond the significant environmental benefits registered,[47] wide acceptance of the schemes seems to be based on the fact that once land managers understand the non- market value of the services required by the schemes, they are much more willing to accept lower prices and internalise some of the perceived costs of conservation.[48]

However, the problem with this is that, as soon as another opportunity to provide greater return emerges, land managers who might already have received payments, including for services that could take a long time to deliver, are less likely to continue to participate in the scheme.[49] This raises the question of when, and to whom should payments be made for the

---

[42] Farm Services Agency (FSA), *Fact Sheet: Conservation Reserve Program* (FSA, February 2013) < http://www.fsa.usda.gov/Internet/FSA_File/crpfactsheet0213.pdf>

[43] Ibid.

[44] J Salzman, 'Creating Markets for Ecosystem Services: Notes from the Field'(2005) 80 NYU L Rev 870-961, 894.

[45] The programme aims to conserve native vegetation remnants on private property, and improves on the CRP through its reliance on a robust assessment methodology and reverse auction mechanism to set the price of the contracts. See Department of Sustainability and Environment, *BushTender: Rethinking Investment for Native Vegetation Outcomes. The Application of Auctions for Securing Private Land Management Agreements* (State of Victoria, Department of Sustainability and Environment 2008), available at <http://www.dse.vic.gov.au/__data/assets/pdf_file/0012/100209/BushTender_rethinking_investment_web.pdf> and G Stoneham and others, 'Auctions for Conservation Contracts: an Empirical Examination of Victoria's BushTender Trial'(2003) 47 Australian Journal of Agricultural and Resource Economics 477-500.

[46] See K H Redford and W M Adams, 'Payment for Ecosystem Services and the Challenge of Saving Nature'(2009) 23 Conservation Biology 785-87.

[47] See e.g., Department of Sustainability and Environment, *BushTender: Rethinking investment for native vegetation outcomes. The application of auctions for securing private land management agreements* (n 45) 26-29; G Stoneham and others, 'Auctions for Conservation Contracts: an Empirical Examination of Victoria's BushTender Trial'(2003) 47 Australian Journal of Agricultural and Resource Economics 477-500, 490.

[48] J Salzman, 'Creating Markets for Ecosystem Services: Notes from the Field'(2005) 80 NYU L Rev 870-961, 896-897.

[49] E.g. the New York City and Catskills Watershed scheme offered to pay farmers $100 per acre every year for up to fifteen years to plant native species along streams, but from January 1997 when the scheme started to the autumn of 2000, only about 400 acres had been planted (G Daily and K Ellison, *The New Economy of Nature: The Quest to Make Conservation Profitable* (Island Press, Washington, D.C 2002) 80).

provision of a service. In any case, both schemes are designed to pay current landholders for biodiversity outcomes at a price close to the landholder's value of the services provided and of the land use foregone (e.g. agriculture, firewood), rather than at the value of the biodiversity itself. The challenge then is to ensure that the volatile nature of the market approach is not allowed to shift the balance in favour of services based on their desirability to humans and of those who are willing to accept the least amount, rather than favouring those actually responsible for the provision of valuable services and reflecting the diversity of the services provided.

Overcoming this challenge depends heavily on how the specific conservation policy is sold to the population concerned. In some cases, persuasive instruments such as educational visits from conservation staff have seemed to work better than using competitive bidding to encourage land managers to change their land management practices. The Scotland National Policy Framework for Goose Management provides an example of a programme that delivers a balance between agriculture and biodiversity conservation.[50] Under the programme, funded through Scottish Natural Heritage (SNH) who also provides administrative support, local goose management groups across Scotland develop local goose management schemes, dealing with the grazing of grass and crops by the large numbers of geese from further north that overwinter in Scotland. There are currently seven schemes with the aim to minimise losses to farmers, whilst ensuring that Scotland fulfils its international nature conservation obligations. Yet, long-term success depends on how the schemes are designed to balance the needs of farmers once the geese numbers have been restored to levels that are deemed to be sustainable. Although the scheme has been reviewed twice and recommendations made,[51] the concern among farmers is that once the geese numbers have been restored to a sustainable level and they are no longer on the endangered list, farmers are left on their own to deal with the destructive activities of the geese on their farm lands without any further payments.[52]

Despite the reported environmental benefits of some of these schemes, a further challenge when deciding which service to pay for is that some functional services can be provided without much benefit to biodiversity. Degraded habitats with little diversity may still provide effective services, albeit with less resilience, whilst introduced species might be effective as native ones. Such considerations should affect who should receive payments. Yet schemes such as the BushTender programme are not designed to account for this. By focusing on specific species, there is the potential of collateral damage to biodiversity as a whole arising from the need to adapt ecosystems by adopting specified management practices to maximise revenue flow.[53] Related issues are whether ecosystem services should be treated singly or as a

---

[50] B Crabtree and others, *2010 Review of Goose Management Policy in Scotland* (BTO, Stirling 2010), available at <http://www.scotland.gov.uk/Resource/Doc/340628/0112833.pdf>

[51] Ibid, 150-182; Scottish Executive, *Report of the National Goose Management Review Group: Review of the National Policy Framework for Goose Management in - Scotland Response by the Scottish Executive* (Scottish Executive, Edinburgh 2005).

[52] See e.g., B Crabtree and others (n 50), 7-8; The Scottish Farmer, 'Geese strip Islay bare' (*Herald & Times Group*, 19 April 2012) <http://www.thescottishfarmer.co.uk/news/geese-strip-islay-bare.17353638> accessed 03 April 2013; Philip Case, 'Scottish geese control needs urgent rethink, says NFUS' (*Farmers Weekly Interactive*, 02 August 2012) <http://www.fwi.co.uk/articles/02/08/2012/134277/scottish-geese-control-needs-urgent-rethink-says-nfus.htm> accessed 03 April 2013. Payments under the scheme incidentally, are currently tied to the number of geese present per hectare: B Crabtree and others (n 50) 146-147.

[53] One of the issues with the CRP has been the concerns over "slippage" – farmers may be ploughing up other land to compensate for land placed in the CRP program: J Wu, 'Slippage Effects of the Conservation Reserve Program: Reply'(2005) 87 American Journal of Agricultural Economics 251-54, 254; E Lichtenberg and R Smith-Ramírez, 'Slippage in Conservation Cost Sharing'(2011) 93 American Journal of Agricultural Economics 113-129, 127-128. A similar concern has also been raised with the Mexico's National Payments for Ecosystem Services Program: J M Alix-Garcia, E N Shapiro and K R E Sims, 'Forest Conservation and Slippage: Evidence from Mexico's National Payments for Ecosystem Services Program'(2012) 88 Land Economics 613-38.

bundle and how overlap with other policy aims, e.g. carbon sequestration, or maintenance of rural populations, is dealt with. The difficulty of valuing ecosystem services in their own right and the pressure to minimise cost through competitive bidding or other alternatives means that it is probably cheaper to treat them as a bundle. However, where there is a possibility of engineering natural systems to maximise the provision of a single service, it might be economically more attractive for policy makers to treat services singly rather than as a bundle.[54]

While the potential is there for the market (auction) approach to continue to play a role in PES schemes, the focus on price minimisation means that all the necessary factors are not always taken into account. Progress has been made in linking the rate of payments to biodiversity outcomes, but a lot more has to be done to take into account all the conflicting factors. Although the current valuation methods have delivered some desired biodiversity benefits, the focus on making annual payments based on inputs and land area, rather than on the outcome of the service delivered, makes it difficult to ascertain whether or not payments are going to those actually responsible for the provision of a particular service. The next section examines the challenge of who is eligible for payments in the context of the changing nature of agricultural tenancy agreements.

Eligibility for Payments

If farmers are now to be seen as integrated land managers, it would seem obvious that those who can sell ecosystem services should be the farmers who have requisite control over what happens on the land. However, fitting responsibility for ecosystem services into land tenure and related structures designed for traditional agriculture poses a range of difficulties.[55] The mismatch between the need for extended periods in order to secure biodiversity benefits and the ever changing nature of tenancy arrangements has implications both on the extent to which the owners and occupiers of agricultural land can contribute to the provision of ecosystem services, and on the social and economic relationships between those who manage land. Different actors are involved in making decisions about the land.

Much of the British countryside that plays a key role in the provision of ecosystem services is held and managed under a variety of tenancy agreements. Besides the obligations imposed on tenants under the terms of these agreements to farm land in an efficient manner, landlords have been able to retain a number of significant rights[56] that are likely to affect both the ability and willingness of tenants to manage their land for ecosystem service provision. If land designated for agriculture is not used according to the rules of good husbandry, a notice to quit can be served on the tenant. Therefore if leaving such land for ecosystem services is not seen as good husbandry, the landlord can apply to the Agricultural Land Tribunal (England and

[54] E.g. the New York City and Catskills Watershed scheme was driven by the economically attractive decision of the city to invest in the provision of the single ecosystem service of water purification which was justified by the avoided cost of not building a water treatment plant. For more on this see, G Daily and K Ellison (n 49), 61-85; J Salzman, 'Creating Markets for Ecosystem Services: Notes from the Field'(2005) 80 NYU L Rev 870-961, 889-892.

[55] Some ecosystem services may be supported by Common Agricultural Policy (CAP) direct payment schemes since the cross compliance obligations require keeping land in Good Agricultural and Environmental Condition (GAEC), and meeting the statutory management requirements in the areas of environment, food safety, animal and plant health and animal welfare.

[56] See e.g., Agricultural Holdings Act 1986, s.23 and Agricultural Holdings (Scotland) Act 1991, s.10 on the powers of the landlord, or any person authorised by him, at all reasonable times to enter the holding for purposes which include to fulfil his obligations to manage the land according to the rules of good estate management (Agriculture Act 1947, s.10 and Agriculture (Scotland) Act 1948 Sch. 5). Other rights of the landowner include the right to minerals, timber and game, e.g. Crofters (Scotland) Act 1993, Sch. 2, para.11. See further, C T Reid, *Nature Conservation Law* (n 6) 370).

Wales) or the Land Court (Scotland) for a certificate of bad husbandry to this effect.[57] Once a certificate of bad husbandry has been granted, a notice to quit on that basis cannot be further scrutinised and the tenant stands to lose the land.[58] Similar statutory conditions apply to crofts in which crofters are required to cultivate the crofts,[59] and to common land in which payments under the EU Rural Development Policy are inapplicable if a common is not put to an agricultural use.[60] Yet there are biodiversity-rich common land units where there is virtually no contemporary agricultural use.[61]

Nevertheless, the rules of good husbandry[62] now allow for land management practices with the objective to conserve flora, fauna or geological or physiographical features, or the protection of buildings or sites of archaeological, architectural or historic interest, or conservation and enhancement of the natural beauty and amenity of the countryside to be included as part of the terms of the tenancy agreement or other agreements between tenant and landlord in England and Wales.[63] Similarly in Scotland, conservation activities are allowed if they are in accordance with statutory agreements or the conditions of public funding.[64] On croft land, managed action to conserve the natural beauty or the flora and fauna is now also acceptable.[65] This is a welcome move, since conservation and the provision of other ecosystem services are sometimes achieved by leaving the land uncultivated.

The relaxation of the rules of good husbandry to include leaving land in its natural state nevertheless raises the question of who can receive payments for the ecosystem services generated by such land. Tenancy arrangements are often triggered by the landlord's desire for a change in the management practice.[66] So if leaving land in its natural state now has the potential to provide a financial return, then there might be no incentive for the landlord to lease out such land in the first place. Even when there is a tenancy agreement, tenants face a potential challenge from the landlord of their eligibility to receive payments for the ecosystem services provided by such lands, creating a degree of uncertainty among beneficiaries or buyers of the service. Beside the effect on the landlord of using land in this way, leaving land uncultivated

[57] Agricultural Holdings Act 1986, Sch. 3 Pt I Case C and Pt II, para. 9 and Agricultural Holdings (Scotland) Act 1991, s.26.
[58] Agricultural Holdings Act 1986, s.26 and Agricultural Holdings (Scotland) Act 1991, s.22. This position is further strengthened by the decision in the case of *Cambusmore Estate Trustees v Little* 1991 SLT (Land Ct) 33, where it was held that the Land Court has no discretion to refuse a certificate of bad husbandry once it has concluded that the rules are being broken.
[59] Crofters (Scotland) Act 1993, ss.5B and 5C.
[60] E.g. for commoners claiming agri-environment payments under environmental friendly schemes such as the Environmental Sensitive Area (ESA) (now superseded by the Environmental Stewardship scheme), only common right holders who are registered as farmers can do so (Natural England, *Common Land and Shared Grazing: Supplement to the Environmental Stewardship Handbooks* (Natural England, Sheffield 2011) and Natural England, *Entry Level Stewardship Environmental Stewardship Handbook* (Natural England, Sheffield January 2013) 145-146).
[61] E.g. the Brancaster and Thornham commons in Norfolk is one of the most important wildlife habitats in the UK, with migrating waterfowl populations of European-level significance but with no present-day agricultural use (see Chapter 9 of C P Rodgers and others, *Contested Common Land: Environmental Governance Past and Present* (Earthscan, London 2011) 163-188).
[62] Agriculture Act 1947, s.11, applied by Agricultural Holdings Act 1986, s.96(3), and Agriculture (Scotland) Act 1948, Sch. 6, applied by Agricultural Holdings (Scotland) Act 1991, s.85(2).
[63] Agricultural Holdings Act 1986, Sch. 3 Pt II para. 9(2).
[64] Agricultural Holdings (Scotland) Act 1991, s.85(2A).
[65] Crofters (Scotland) Act 1993, ss. 5B, 5C and 19C(6).
[66] See e.g., R J C Munton and T K Marsden, 'Occupancy Change and the Farmed Landscape: an Analysis of Farm-level Trends, 1970 - 85'(1991) 23 Environment and Planning A 499-510.

or using it for conservation activities might also have both positive and negative impacts on a neighbouring tenant who uses land for farming.[67]

The challenge for those wishing to pay for ecosystem services may therefore be one of ascertaining exactly who it is that is entitled to sell the particular service. One option is to require the tenant to obtain the landlord's written approval prior to entering any such schemes. It is an approach that has been adopted under the various agri-environment and forestry support schemes, in which the landlord's consent is required before the tenant can proceed to carry out certain activities on the land. Under the Scotland Rural Development Contracts – Land Managers Options, any land manager with land in Scotland can apply for payments.[68] However, tenants must discuss their proposed application with the landlord to make sure it does not break the conditions of their tenancy.[69] The landlord must then give his consent, especially if the tenancy or contractual licence has less than five years to run. Also where land is let out only on a seasonal basis it is the landlord who is eligible for payments, not the tenant.[70] Although the landlord is responsible for making sure the requirements for payments are met on the land, such an arrangement leaves seasonal tenants whose activities might have generated ecosystem services without the right to seek payments for such services. The Rural Priorities funding scheme[71] follows a similar arrangement, as do the main schemes in England and Wales.[72]

The Single Payments Scheme (SPS) in England provides an example of where the landlord retains the right to challenge the land management practices (including leaving land uncultivated) of the tenant. The scheme aims to remove incentives for overproduction and to allow farm management decisions to be made in response to market conditions, whilst maintaining environmental standards and sustainable farming practices. Under the scheme, land use restrictions within a tenancy agreement are strictly between the landlord and the tenant, and applications for SPS may be made by the person who has land "at his disposal". This test is explained in terms of standard agricultural activities which may not exactly fit the different interests where land is being used for providing ecosystem services.[73]

The above examples reveal that determining who is eligible to receive payments for ecosystem services is not straightforward, nor is fitting activities that produce ecosystem services within a structure based on ensuring efficient agricultural production, especially for tenants acting on their own, without formal support.[74] The effect of this is that tenants who pursue the provision of ecosystem services may not be able to receive payments for the services because the provision of such services is not deemed as efficient agricultural practice or more generally, approved by the landlord.

---

[67] See e.g., the case of *Tutton and Others v A. D. Walter Ltd.* [1986] QB 61 where it was held that tenants owe a duty of care to their neighbours if in carrying out a lawful activity on their land, they destroy the provision of a service which, despite being beneficial to them, was not needed.

[68] The Rural Development Contracts (Land Managers Options) (Scotland) Regulations 2008 (SSI 2008/159).

[69] The Scottish Government, *Rural Development Contracts: Land Managers Options (LMO) Guidance 2008* (Notes for Guidance, The Scottish Government, Edinburgh March 2008) 1, available at <http://www.scotland.gov.uk/Resource/Doc/217663/0058305.pdf>.

[70] Ibid, 3.

[71] The Rural Development Contracts (Rural Priorities) (Scotland) Regulations 2008 (SSI 2008/100).

[72] The main scheme in England is the Environmental Stewardship scheme, which is divided into Entry Level and Higher Level schemes (The Environmental Stewardship (England) Regulations 2005 (SI 2005/621) . In Wales, the main scheme is Glastir, which is a merger of Tir Cynnal, Tir Gofal, Tir Mynydd and the Organic Farming Scheme (Welsh Assembly Government, *Glastir: New Sustainable Land Management Scheme for Wales,* February 2010, available at <http://wales.gov.uk/docs/drah/publications/100407glastirinserten.pdf>).

[73] Defra, *Single Payment Scheme Handbook for England 2013 Including the Uplands Transitional Payment* (Defra January 2013), 49.

[74] C T Reid, *Nature Conservation Law* (n 6) 371.

The use of short-term tenancies creates risks for the delivery of real benefits for biodiversity where these depend on consistent management over a prolonged period, but also creates a challenge in determining who should be paid, and how, for service provision in the short-, medium- and long-term. The pattern has been to pay for the input, i.e. the cost of certain management activity, e.g. planting hedges, but not for the provision of the service in the medium to long term. By paying for work done today to the person who has met the bill, the problem of identifying the future provider of the service is avoided, but not necessarily fairly. The alternative of paying for the service when it is provided presents current owners and potential purchasers and tenants with difficulties in assessing the value of land in a way that takes account of the future potential ecosystem services that the land is likely to produce. Apart from problems over the methodology for quantifying the service, any value depends on the nature of the schemes providing payment for ecosystem services and their duration.

In some ways this is familiar in the light of experience with existing agricultural support schemes. However, to achieve long-term benefits for biodiversity, benefits may have to be more firmly attached to specific land than under some of the present schemes.[75] The various options under the Scotland Rural Development Contracts scheme provide an example of the difficulty for the landlord associated with the tenant receiving payments for services for the duration of a short-term tenancy agreement. They require anyone participating in the schemes to own or hold the land under a secure tenancy agreement or contractual licence for at least five continuous years. To undertake agri-environment, forestry or access options, the tenant will have to make a joint application with the landlord if a tenancy or a licence has less than five years to run. The significance of this is that the landlord commits to continuously meeting the obligations under the scheme if the tenant stops having control over the land during the five years of their commitment and ensures transfer to a new tenant if need be. In this case, a successor agreement with the landlord or new tenant must be entered within three months of the tenancy ending. Failure to do so will trigger a repayment of the scheme payments already received, with interest.[76] This approach ensures continuity in the provision of services. However, the placing of obligations on the landlord or new tenant while it is the old tenant who would have received payments prior to the end of their tenancy may affect the willingness of the landlord to give their consent or lease out land in the first place. While the system of initial payments may work for some services that require immediate action or no action to deliver immediate benefits, there are challenges in how to allocate and transfer the payments for services such as those derived from forestry that require a long time to deliver real benefits. Again, by paying for the cost of certain management activities, e.g. planting trees, but not for the provision of the service, the difficulty of attributing responsibility over an extended period is avoided.

Further complications arise where the ecosystem service is provided by land that is not a single occupancy unit. The problem is particularly acute when using common land in England and Wales and croft land in Scotland for the provision of ecosystem services. Commons are subject to individual ownership with a wide range of property rights, but the owners' freedom is restricted by recognising the legal validity of the use rights of commoners. Of the legal categories of common use rights widely recognised,[77] three are more frequently encountered. The common of pasture is the right to graze livestock on the common. The exercise of this right

[75] Defra, *Single Payment Scheme Handbook for England 2013 Including the Uplands Transitional Payment*, 20-22; The Scottish Government, *Guidance Notes for Transfer of Payment Entitlements (Sale, Lease or Inheritance)* (The Scottish Government, October 2011).

[76] See e.g., The Scottish Government*, Rural Development Contracts (Rural Priorities) Succession Guidance* (The Scottish Government, July 2012) <http://www.scotland.gov.uk/Resource/0039/00397608.pdf>.

[77] See e.g., A Sydenham, *Commons and Village Greens: The Modern Law* (Lime Legal, Corsham 2006) ss. 3.2.1-3.2.7.

has traditionally been governed by a set of principles that regulate the number of livestock to graze the common resource.[78] The common of turbary is the right to cut turf or peat for fuel, and is limited to domestic use. The common of estovers is similar to that of turbary. It is the right to cut timber or other vegetation for purposes of repairing fences, houses or as fuel. It is to be limited in quantity or limited to what is necessary for the maintenance of the land to which it is attached, and which it is intended to benefit. There is no right to sell estovers or the other common rights separately from the land which they intend to benefit,[79] or put them to a use other than what is recognised by the law. Other rights of common, less commonly encountered in practice today, are the right of pannage (the right to graze pigs in forests, take fish, wild animals and the soil itself), and the right of piscary (the right to take fish from a lake, river or stream belonging to another).

The provision of ecosystem services is directly related to what happens on the land, and determining whether PES entitlements should be sold and who can sell them – those who hold the specific commons use rights that affect the ecosystem service or the owners – will depend on what type of rights they are seen to be. The task then is to determine whether PES entitlements in the commons are a new category of commoners' use rights, or rights that should be attached to existing categories of commoners' rights, or are among the rights retained by the landowner. Since the provision of ecosystem services on common land will invariably be dependent at least in part on whether and how other rights are exercised, it is hard to see how PES entitlements can exist exclusively as a new category of commoners' rights. Taking into account the fact that different commons rights are not always mutually compatible (conflicting uses of the commons), issues remain as to how responsibilities and benefits accruing from the provision of ecosystem services are shared between different rights holders and the owners. For those currently holding use rights to be able to receive income under PES schemes, there will have to be a redefinition of what is recognised by the law as the appropriate exercise of the existing categories of use rights (e.g. the right to pasture, right to estovers), to include the provision of ecosystem services.

Similar issues of eligibility for payments arise when using crofts in Scotland for the provision of ecosystem services. However, the law on crofting in Scotland provides a potential model of how to determine who may be responsible for the provision of particular ecosystem services in areas with multiple occupancies. Specifically, crofters who share in a common grazing may establish grazings committees.[80] These committees have the powers to establish the mechanism for sharing responsibilities and benefits arising from the use of the common grazing between owners and/or any crofter who holds a right,[81] including when using common grazing for forestry purposes.[82] Although some activities of crofters, including the use by crofters on the same land of peat bogs, or of seaweed, or of heather or grass used for the maintenance of the croft, are further regulated by a Crofting Commission,[83] this mechanism of sharing responsibilities and benefits in the management of common resources provides a useful example of how to determine who might be eligibility for payments for the provision of ecosystem services from common land. On the other hand, the powers of landlords to apply to

[78] The rule of levancy and couchancy restricted the number of livestock allowed to graze the common based on the capacity of the land and the rule of 'stints' permitted a fixed number of livestock to graze the common land.
[79] Commons Act 2006, s.9. For more the nature and extent of the different categories of common use rights, see C P Rodgers and others, *Contested Common Land: Environmental Governance Past and Present* (Earthscan, London 2011) 4-7. See further, E H Burn and J Cartwright, *Cheshire and Burn's Modern Law of Real Property* (18th edn, OUP, Oxford 2011) 705-707.
[80] Crofters (Scotland) Act 1993, s.47.
[81] Ibid, ss.48, 49 and 49A.
[82] Ibid, ss.50 and 50A.
[83] Ibid, s.52(9).

resume croft land for "reasonable purposes"[84] might provide a different model whereby it is they, not the crofters, who benefit from converting land to provide ecosystem services.

Conclusion

Despite the challenges involved, the use of PES schemes has continued to expand in many places around the world. There is significant evidence that they are delivering real benefits to biodiversity in a cost-effective manner. However, if they are to form part of our wider biodiversity conservation policy, closer attention must be paid to the challenges they present, particularly those relating to valuation and eligibility for payments. No single model has been proposed that deals with these issues directly. Nevertheless, by utilising payments based on inputs and on land area, rather than on outcomes (or the provision of the service in the medium to long term), many of the issues of eligibility are addressed in existing schemes. But, this is not necessarily fair to the successors in title who may be responsible for maintaining services even though payments had already been made, nor to those already providing services voluntarily, without the need for further expensive management activity to enable their land to deliver these benefits. Therefore, whatever technique is adopted, an initial question is to establish the objective being sought, in line with the ecosystem approach.[85] When paying for ecosystem services, it is important to define exactly what service is being paid for, especially as these may be difficult to disaggregate, e.g. valuable habitat provided to further biodiversity may also act as a carbon sink.

Further problems arise from the ways in which so much of the land is used and held in the UK. There is a lack of clarity over how managing land to deliver this new "produce" in the form of ecosystem services fits within existing structures of land-holding based on agricultural and forestry production. To what extent can using land for the provision of ecosystem services fall within definitions of agriculture and good husbandry? Who is the person entitled to sell ecosystem services? In the use of PES schemes, short-term tenancy arrangements pose a challenge, both in ensuring that any benefits are delivered in the long term and in matching the payments made to the actual contributions of various parties. On common land no one individual can take sole control or dispose of the resources; yet the interests and actions of each individual are immensely powerful – potentially beneficial or destructive – and must be carefully balanced by the community of users if the commons and its ecosystem services are to be sustained. The experience of the current agri-environment payment schemes raises the question of whether the use of PES entitlements (even if treated as a new category of property rights) can succeed in enhancing the nature conservation objectives sought in the public interest where the existing property rights in common land have failed.[86]

The challenge is how to balance the public interest in nature conservation (sought by the use of PES) with the private interests (property rights) of landowners, tenants and others across the range of different land-holding patterns. If PES is to be widely used as one approach to biodiversity conservation, a well-defined payment system, flexible enough to accommodate different layers of ownership and use and to cope with the changes in these over time, will be necessary in order to secure the provision of services over the extended period that must be covered if substantial public benefits are to accrue.

---

[84] Ibid, s.20.

[85] See e.g., T Greiber and S Schiele, *Governance of Ecosystem Services: Lessons Learned from Cameroon, China, Costa Rica, and Ecuador* (n 20) 129-139.

[86] See generally, C P Rodgers and others (n 79), Ch. 4, 51-68.